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UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

LIST OF PUBLICATIONS
OF THE DIVISION OF INSECTICIDE INVESTIGATIONS

July 1, 1927, to June 30, 1937

R. C. Roark, Principal Chemist in Charge

PUBLICATIONS OF THE DIVISION OF INSECTICIDE INVESTIGATIONS

BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE, WASHINGTON, D. C.

(July 1, 1927 1/ to June 30, 1937)

Some of the publications listed below were prepared jointly by members of the Division of Insecticide Investigations and those of other organizations; the asterisk indicates the authors not connected with this Division.

Copies of the journals mentioned can be consulted in almost any large public or institutional library. Of the publications listed the following only are available for distribution and will be furnished, upon request, so long as the supply lasts: Publication index Nos. 112, 132, 209, 247, 250, 259, 277, 279, 281, 288, 306, 319, 321, 327 and 337.

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1. Repellents for Blowflies. R. C. Roark, D. C. Parman,* F. C. Bishopp* and E. W. Laake.* Indus. and Engin. Chem., v. 19, no. 8, p. 942-943, Aug. 1927.
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270. The Toxicity of Optically Active and Inactive Dihydrodeguelins. W. A. Gersdorff. Jour. Agr. Research, v. 51, no. 4, p. 355-361, Aug. 1935. [Issued Oct. 1935]
271. Insecticides for Combating Household Pests. R. C. Roark. Exterminators Log, v. 3, no. 11, p. 11-13, Nov. 1935. Also published under the title Household Insecticides, Soap, v. 11, no. 11, p. 101, 103, 117, Nov. 1935.
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273. The Vacuum Fumigation of Flour Products with Hydrocyanic Acid. H. D. Young, George B. Wagner,* and R. T. Cotton.* Jour. Econ. Ent. v. 28, no. 6, p. 1049-1055, Dec. 1935.
274. The Dimorphism of Rotenone. E. L. Gooden and C. M. Smith. Jour. Amer. Chem. Soc., v. 57, no. 12, p. 2616-2618, Dec. 1935.
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277. A Third Index of Patented Mothproofing Materials. R. C. Roark and R. L. Busbey. Mimeographed, 104 pp., Feb. 1936.
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286. Nicotine Peat - A New Insoluble Nicotine Insecticide. L. N. Markwood. Indus. and Engin. Chem., Ind. Ed., v. 28, no. 5, p. 561-563, May 1936.
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289. Derris and Cube. Approximate Chemical Evaluation of Their Toxicity. Howard A. Jones and C. M. Smith. Soap, v. 12, no. 6, p. 113, 115, 117, June 1936.
290. The Occurrence of Quebrachite in the Stems of Haplophyton cimicidum. E. P. Clark. Jour. Amer. Chem. Soc., v. 58, no. 6, p. 1009-1010, June 1936.
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296. Relative Toxicity of Some Optically Active and Inactive Rotenone Derivatives to Culicine Mosquito Larvae. David E. Fink* and H. L. Haller. Jour. Econ. Ent., v. 29, no. 3, p. 594-598, June 1936.
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298. Tests of Possible Substitutes for Hydrocyanic Acid in Fumigation of California Red Scale. H. L. Cupples, H. R. Yust* and Julian Hiley. Jour. Econ. Ent., v. 29, no. 3, p. 611-618, June 1936.
299. The Comparative Insecticidal Efficiency Against the Camphor Scale of Spray Oils with Different Unsulphonatable Residues. A. W. Cressman* and Lynn H. Dawsey. Jour. Agr. Research, v. 52, no. 11, p. 865-878, June 1, 1936. Issued July, 1936.
300. Research to Find Substitutes for Lead Arsenate. R. C. Roark. Conn. Pomological Society - Proc. 45th Annual Meeting Dec. 10-13, 1935, v. 38, p. 159-165. 1935. (Rec'd. in Dept. Library July 20, 1936).

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301. The Relative Efficiency of Certain Lead Arsenate Spray Treatments. L. F. Steiner,* R. F. Sazama,* J. E. Fahey and H. W. Rusk. Indiana Horticultural Society - Trans. for Year 1935. (Rpt. of 75th Annual Meeting Jan. 21-23, 1936). p. 38-43. (Rec'd. in Dept. Library July 20, 1936.)
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305. Lead Content of Chewing Tobaccos and Snuffs. C. C. Cassil and C. M. Smith. Amer. Jour. Public Health, v. 26, no. 9, p. 901-904, Sept. 1936.
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307. Constituents of Pyrethrum Flowers. VI. The Structure of Pyrethrolone. F. B. LaForge and H. L. Haller. Jour. Amer. Chem. Soc., v. 58, no. 9, p. 1777-1780, Sept. 1936.
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309. The Machinery-Piping System of Flour-Mill Fumigation. Geo. B. Wagner,* R. T. Cotton* and H. D. Young. E-396, Multigraphed, 8 pp, 12 figs., Oct. 1936.
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313. Portable Rack for Kjeldahl Flasks. H. W. Rusk. The Chemist Analyst, v. 25, no. 4, p. 92-93, Oct. 1936.

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314. Book review of "Introduction to Theoretical Chemistry" by William Buell Mildrum and Frank Thomson Gucker. O. A. Nelson. Jour. Assoc. Off. Agr. Chem., v. 19, no. 4, p. 671, Nov. 15, 1936.
315. The Particle Size of Insecticidal Dusts. A New Differential Manometer-Type Sedimentation Apparatus. L. D. Goodhue and C. M. Smith. Indus. and Engin. Chem., Anal. Ed., v. 8, no. 6, p. 469-472, Nov. 15, 1936.
316. Semi-Microdetermination of Acetyl - Especially in O-Acetyl Compounds. E. P. Clark. Indus. and Engin. Chem., Anal. Ed., v. 8, no. 6, p. 487-488, Nov. 15, 1936.
317. The Solubility of Nicotine Silicotungstate in Solutions of Dilute Hydrochloric Acid. J. R. Spies. Jour. Amer. Chem. Soc., v. 58, no. 12, p. 2386-2388, Dec. 1936.
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319. A Bibliography of Nicotine. Part II. The Insecticidal Uses of Nicotine and Tobacco. N. E. McIndoo,* R. C. Roark and R. L. Busbey. E-392. Mimeographed in 3 sections (Section 1, 198 pp.; Section 2, p. 199-358; and Section 3, p. 359-628), Jan. 1937.
320. Determination of Small Quantities of Nicotine by a Silicotungstic Acid Micromethod. J. R. Spies. Indus. and Engin. Chem., Anal. Ed., v. 9, no. 1, p. 46, 47, Jan. 15, 1937.
321. The Use of Phenothiazine as an Insecticide. L. E. Smith. E-399, Mimeographed, 11 pp., Jan. 1937.
322. The Optical Rotatory Power of Extracts of Derris and Cube Roots. H. A. Jones. Jour. Agr. Research, v. 53, no. 11, p. 831-839, Dec. 1, 1936 (issued Jan. 1937).
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324. Homologs of Paris Green. III. Members of the Oleic and Linoleic Acid Series. F. E. Dearborn. Jour. Econ. Ent., v. 30, no. 1, p. 140-143, Feb. 1937.
325. Variability in Lead Residues on Apples. M. H. Haller,* C. C. Cassil and Edwin Gould.* Jour. Econ. Ent., v. 30, no. 1, p. 174-179, Feb. 1937.
326. Pyrethrins in Fresh Pyrethrum Flowers. H. L. Haller. Jour. Econ. Ent., v. 30, no. 1, p. 210-211, Feb. 1937.
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328. A Crystalline Compound of Semicarbazide and Semicarbazide Hydrochloride. H. L. Haller and F. B. LaForge. Jour. Amer. Chem. Soc., v. 59, no. 4, p. 760, Apr. 1937.
329. The Solubility of Certain Semicarbazones in Dilute Hydrochloric Acid. F. B. LaForge and H. L. Haller. Jour. Amer. Chem. Soc., v. 59, no. 4, p. 760-761, Apr. 1937.
330. The Relative Quantities of Oil Deposited Upon Paraffin-Coated Plates and Upon Plant Foliage by Oil Sprays. L. H. Dawsey, A. W. Cressman* and J. Hiley. Jour. Agr. Research, v. 54, no. 5, p. 387-398, March 1, 1937. [Issued April, 1937].
331. Toxicity of Phenothiazine Derivatives to Culicine Mosquito Larvae. P. S. Schaffer, H. L. Haller and D. E. Fink.* Jour. Econ. Ent., v. 30, no. 2, p. 361-363, Apr. 1937.
332. Principal Optical and Physical Properties of the Carbon Tetrachloride Solvate of Rotenone. E. L. Gooden and C. M. Smith. Jour. Amer. Chem. Soc., v. 59, no. 5, p. 787-789, May 1937.
333. Quassin. I. The Preparation and Purification of Quassin and Nequassin, with Information Concerning their Molecular Formulas. E.P. Clark. Jour. Amer. Chem. Soc., v. 59, no. 5, p. 927-931, May 1937.
334. Determination of Rotenone in Derris and Cube. Crystallization from Extracts. Howard A. Jones. Indus. and Engin. Chem., Anal. Ed., vol. 9, no. 5, May 15, 1937, p. 206-210, May 15, 1937.
335. Relative Toxicity of the Cresols as Demonstrated by Tests with Carassius auratus. W. A. Gersdorff. Jour. Agr. Research, v. 54, no. 6, p. 469-478, March 15, 1937. [Issued May, 1937.]
336. Recent Advances in the Vacuum Fumigation of Cereal Products with Certain Fumigants. R. T. Cotton,* Geo. B. Wagner* and H. D. Young. E-405, Multigraphed, 7 pp., 3 figs., May 1937.
337. The Arsenates of Manganese as Insecticides (A Review of the Literature). F. E. Dearborn. E-408, Mimeographed, 27 pp., May 1937.
338. Report on Arsenic. C. C. Cassil. Jour. Assoc. Off. Agr. Chem., v. 20, no. 2, p. 171-178, May 1937.
339. The Decomposition of 2-Fluorenediazonium Chloride and 2-Fluorenone-diazonium Chloride in Acetic Acid. H. V. Claborn and H. L. Haller. Jour. Amer. Chem. Soc., v. 59, no. 6, p. 1055-1056, June 1937.
340. Constituents of Pyrethrum Flowers. VII. The Behavior of the Pyrethrins on Hydrogenation. H.L.Haller and F.B.LaForge. Jour. Organic Chemistry, v.2, no.1, p.49-55, Mar. 1937. [Issued June, 1937].

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341. Constituents of Pyrethrum Flowers. VIII. The Presence of a New Ester of Pyrethrolone. F. B. LaForge and H. L. Haller. Jour. Organic Chemistry, v. 2, no. 1, p. 56-61, March, 1937. [Issued June, 1937.]
342. Croton Resin. IV. The Petroleum-Ether-Insoluble Acids. J. R. Spies. Jour. Organic Chemistry, v. 2, no. 1, p. 62-67; Mar: 1937. [Issued June 1937]
343. Particle Size of Commercial Calcium Arsenates by Sedimentation Analysis. L. D. Goodhue. Jour. Econ. Ent., v. 30, no. 3, p. 466-474, June 1937.
344. An Examination of Commercial Calcium Arsenates. O. A. Nelson and C. C. Cassil. Jour. Econ. Ent., v. 30, no. 3, p. 474-478, June 1937.
345. An Insect that Breathes Through Its Nose. R. C. Roark. Jour. Econ. Ent., v. 30, no. 3, p. 522-527, June 1937.
346. Oxygen as a Factor in Vacuum Fumigation. R. T. Cotton,* G. B. Wagner* and H. D. Young. Jour. Econ. Ent., v. 30, no. 3, p. 560, June 1937.

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LIST OF PUBLICATIONS OF THE DIVISION OF INSECTICIDE INVESTIGATIONS

BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE, WASHINGTON, D. C.

For the Six-Month Period Ending December 31, 1937. 1

Some of the publications listed below were prepared jointly by members of the Division of Insecticide Investigations and those of other organizations; the asterisk indicates the authors not connected with this Division.

Copies of the journals mentioned can be consulted in almost any large public or institutional library. Of the publications listed the following only are available for distribution and will be furnished, upon request, so long as the supply lasts: Publication index Nos. 351, 359, 363, 364 and 367.

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347. Relationship of Grains of Spray Residue per Pound of Apple to Micrograms per Square Centimeter of Surface - A Conversion Table. H. W. Rusk. Hoosier Horticulture, vol. 19, no. 7, p. 109-112, July 1937.
348. Chemical Studies of Spray Deposits. J. E. Fahey and H. W. Rusk. Indiana Horticultural Society Transactions for the year 1936, being a Report of the 76th Annual Meeting held January, 1937, p. 85-90. [Rec'd. by Department Library July 27, 1937.]
349. Wetting and Spreading Properties of Aqueous Solutions. Mixtures of Sodium Hydroxide with n-Caproic, n-Caprylic, n-Capric, Lauric, Myristic, and Palmitic Acids. H. L. Cupples. Ind. Eng. Chem., Ind. Ed., vol. 29, no. 8, pp. 924-926, August 1937.
350. Laboratory Apparatus for Fumigation with Low Concentrations of Nicotine - With Studies on Aphids. H. H. Richardson* and R. L. Busbey. Jour. Econ. Ent., vol. 30, no. 4, p. 576-582, August 1937.
351. Semicommercial Manufacture of Nicotine Peat. L. N. Markwood. Jour. Econ. Ent., vol. 30, no. 4, p. 648-651, August 1937.
352. Chemical and Insecticidal Tests of Samples of Tephrosia toxicaria. H. A. Jones and W. N. Sullivan.* Jour. Econ. Ent., vol. 30, no. 4, p. 679-680, August 1937.
353. Constant-Temperature Bath for Molecular Stills. O. A. Nelson and H. L. Haller. Ind. Eng. Chem., Anal. Ed., vol. 9, no. 8, p. 402, August 1937.
354. Report on Fluorine Compounds. R. H. Carter. Jour. Assoc. Off. Agr. Chem., vol. 20, no. 3, p. 394, August 1937.
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*Copies of the 10-year list for the period July 1, 1927, to June 30, 1937, available upon request.

355. Constituents of Pyrethrum Flowers. IX. The Optical Rotation of Pyrethrolone and the Partial Synthesis of Pyrethrins. H. L. Haller and F. B. LaForge. Jour. Amer. Chem. Soc., vol. 59, no. 9, p. 1678-1681, September 1937.
356. Occurrence of 1-Nornicotine in Nicotiana sylvestris. C. R. Smith. Jour. Econ. Ent., vol. 30, no. 5, p. 724-727, October, 1937.
357. Composition of Paris Greens Manufactured During 1936. F. E. Dearborn. Jour. Econ. Ent., vol. 30, no. 5, p. 804, October 1937.
358. Heavier-Than-Air Fumigants and Their Relation to Methods of Fumigation for Insect Control. R. T. Cotton*, G. B. Wagner*, and H. D. Young, The National Grain Jour. vol. 21, no. 11, p. 10-12, October 1937.
359. A Statistical Study of the Sampling and Analytical Errors Encountered in Analyzing Apples for Lead Spray Residues. C. M. Smith and C. C. Cassil. Jour. Assoc. Off. Agr. Chem., vol. 20, no. 4, p. 617-622. November 1937.
360. Book Review of "Qualitative Analysis and Chemical Equilibrium" by T. R. Hogness and W. C. Johnson. O. A. Nelson, Jour. Assoc. Off. Agr. Chem., vol. 20, no. 4, p. 656, November 1937.
361. The Problem of Controlling Insects in Flour Warehouses. R. T. Cotton,* G. B. Wagner,* and H. D. Young, American Miller, vol. 65, no. 11, p. 22, 24, 26, 79, November 1937.
362. The Determination of Acetyl, Especially in O-Acetyl Compounds. E. P. Clark. Ind. Eng. Chem., Anal. Ed., vol. 9, no. 11, p. 539, November 1937.
363. Calcium Arsenates. An Investigation into the Three-Component System Calcium Oxide-Arsenic Oxide-Water. O. A. Nelson and M. M. Haring*, Jour. Amer. Chem. Soc., vol. 59, no. 11, p. 2216-2223, November 1937.
364. Experiments with Certain Copper Compounds as Bunt Fungicides. O. A. Nelson and R. W. Leukel*, U. S. Dept. Agr. Circ. #452, 8 pp., November 1937.
365. Quassin. II. Neoquassin. E. P. Clark. Jour. Amer. Chem. Soc., vol. 59, no. 12, p. 2511-2514, December 1937.
366. The Solubility of Rotenone. II. Data for Certain Additional Solvents. H. A. Jones and S. Love. Jour. Amer. Chem. Soc., vol. 59, no. 12, p. 2694-2696, December 1937.

367. A Motor-Driven Telescoping Stirrer for Use with an Insecticide Spraying Apparatus. L. D. Goodhue and E. H. Siegler.* Bureau of Entomology and Plant Quarantine ET-114, 1 p., 1 fig. Multigraphed. December 1937.
368. Some Physical Properties of Commercial Paris Greens. L. D. Goodhue and E. L. Gooden. Jour. Econ. Ent., vol. 30, no. 6, p. 913-917. December 1937.
369. Homologs of Paris Green. IV. Insecticides Prepared from Animal and Vegetable Oils. F. E. Dearborn. Jour. Econ. Ent., vol. 30, no. 6, p. 958-962, December 1937.

U. S. Patents by Members of the Division of Insecticide Investigations 2/.

24. 2,094,831 (Oct. 5, 1937; appl. June 27, 1936). INSECTICIDE. D. L. Vivian and H. L. J. Haller. [Covers the use as insecticides of hydroxy azo compounds containing at least one hydroxy group and at least one nitro group; for example, 4-(p-nitrophenylazo)-resorcinol and 1-(p-nitrophenylazo)-2-naphthol.]
25. 2,095,738 (Oct. 12, 1937; appl. Jan. 29, 1937). THERMOREGULATOR. L. D. Goodhue.
26. 2,095,939 (Oct. 12, 1937; appl. June 27, 1936). INSECTICIDE. D. L. Vivian and H. L. J. Haller. [This insecticide comprises an aryl hydroxy azo compound in which the nuclei are substituted by one azo, one or more hydroxy, and one or more halogen groups; for example, p-(p-bromophenylazo)-phenol, 4-(p-bromophenylazo)-resorcinol, and 4-(2,5-dichlorophenylazo)-phenol.]
27. 2,095,940 (Oct. 12, 1937; appl. June 27, 1936). INSECTICIDE. D. L. Vivian and H. L. J. Haller. [This insecticide comprises an arylazo compound in which the nuclei are substituted by at least one halogen atom; for example, p-iodoazobenzene.]
28. 2,095,941 (Oct. 12, 1937; appl. June 27, 1936). INSECTICIDE. Donald L. Vivian and Herbert L. J. Haller. [This insecticide comprises a compound containing homocyclic nuclei joined by one azo group, and containing in addition to not less than one hydroxyl group, not less than one halogen atom and not less than one alkyl group; for example, 4-(2,5-dichlorophenylazo)-o-cresol, 4-(p-bromophenylazo)-o-cresol, and 4-(p-bromophenylazo)-m-cresol.]
29. 2,096,414 (Oct. 19, 1937; appl. June 27, 1936). INSECTICIDE. D. L. Vivian and H. L. J. Haller. [This insecticide comprises a compound selected from the group consisting of 4-phenylazo-o-toluidine, 4-phenylazo-m-toluidine, p-(o-tolylazo)-aniline, p-(m-tolylazo)-aniline, p-(p-tolylazo)-aniline, 1-(o-tolylazo)-2-naphthylamine, 4-(o-tolylazo)-1-naphthylamine, 1-(m-tolylazo)-2-naphthylamine, 1-(p-tolylazo)-2-naphthylamine, 4-(m-tolylazo)-1-naphthylamine, 4-(p-tolylazo)-1-naphthylamine, and 4-(o-tolylazo)-o-toluidine.]
30. 2,096,566 (Oct. 19, 1937; appl. Dec. 27, 1933). COMPOUND AND PROCESS FOR MAKING SAME. C. R. Smith. [An insecticide comprising nicotine-bentonite compounds.]
31. 2,096,715 (Oct. 26, 1937; appl. Feb. 26, 1937). PROCESS OF PREPARING DIHYDRO-JASMONE. H. L. J. Haller and F. B. LaForge.
32. 2,099,826 (Nov. 23, 1937; appl. July 22, 1937). INSECTICIDE. P. S. Schaffer and H. L. J. Haller. [Dialkylacridan.]
33. 2,100,493 (Nov. 30, 1937; appl. June 3, 1936). INSECTICIDE. L. E. Smith and H. V. Claborn. [o-, m-, and p-Nitroiodobenzenes.]
34. 2,103,195 (Dec. 21, 1937; appl. July 3, 1937). INSECTICIDE. H. A. Jones. [Combination of rotenone and dichloroacetic acid.]

²Copies of all patents can be obtained for 10 cents (no postage) sent direct to the Patent Office, Washington, D. C. In ordering a copy of a patent, the number of the patent, the date, the name of the patentee, and the subject of the invention should be stated.

PATENTS OF THE DIVISION OF INSECTICIDE INVESTIGATIONS^{1/}

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1. 1,789,322 (Jan. 20, 1931; appl. Nov. 23, 1927). MATERIAL FOR KILLING INSECTS. R. C. Roark and R. T. Cotton.* (Chloroacetates as fumigants.)
2. 1,791,429 (Feb. 3, 1931; appl. Feb. 23, 1929). INSECTICIDE AND FUMIGANT. R. C. Roark and R. T. Cotton.* (Ethylene oxide as an insecticidal fumigant.)
3. 1,842,443 (Jan. 26, 1932; appl. Nov. 15, 1929). PROCESS FOR THE MANUFACTURE OF INSECTICIDES AND METHOD OF MAKING SAME. R. H. Carter. (Manufacture of double fluorides of the alkali metals with aluminum by treatment of a water insoluble compound of aluminum with alkali metal compounds and hydrofluoric acid.)
4. 1,863,266 (June 14, 1932; appl. Nov. 15, 1929). PROCESS FOR THE MANUFACTURE OF INSECTICIDES AND METHOD OF MAKING SAME. R. H. Carter. (Manufacture of double fluorides of the alkali metals with aluminum in admixture with hydrated silica as diluent by treatment of water soluble salts of aluminum with alkali metal compounds and hydrofluosilicic acid.)
5. 1,863,519 (June 14, 1932; appl. Nov. 1929). PROCESS FOR THE MANUFACTURE OF INSECTICIDES AND METHOD OF MAKING SAME. R. H. Carter. (Double fluorides of the alkali metals with aluminum in admixture with hydrated alumina as diluent by treatment of water soluble salts of aluminum with alkali metal compounds and hydrofluoric acid.)
6. 1,884,966 (Oct. 25, 1932; appl. Feb. 19, 1930). PROCESS FOR THE REMOVAL OF NATURAL OILS, WAX, AND SPRAY RESIDUES FROM FRUITS. R. H. Robinson. (With hydrochloric acid, water, and a petroleum hydrocarbon.)
7. 1,885,100 (Oct. 25, 1932; appl. July 11, 1929). PROCESS FOR THE REMOVAL OF SPRAY RESIDUES FROM FRUITS AND VEGETABLES. R. H. Robinson. (By means of a mixture of hydrochloric acid and ferrous sulphate.)
8. 1,928,256 (Sept. 26, 1933; appl. Aug. 23, 1930). INSECTICIDE AND PROCESS OF MAKING THE SAME. H. A. Jones. (Colloidal dispersions of rotenone by the aid of pyridine.)
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^{1/} Copies of all patents can be obtained for 10 cents (no postage) sent to the Patent Office, Washington, D. C. In ordering a copy of a patent the number of the patent, the date, the name of the patentee, and the subject of the invention should be stated.

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